

## **Explanation Notes – Electrical Installation Design Drawings CECC - Black Rock Harbor Project Saba**

- Applicable Electrical Safety Regulations for this project: NEN 1010 (Latest edition) and NEN-EN-IEC 61439-2 (Main Distribution Panel)
- We recommend using a TN-S system for this project.
- The Main Distribution Board has 3 Sections:
  - o Left Section is for the 480/277V loads (Maximum Transformer Capacity = 630 kVA)
  - o Right Section is for the 220/127V loads (Maximum Transformer Capacity = 630 kVA)
  - o Center section is for 4 Manual Transfer Switches which give the Dock operator the possibility to supply or 480/277V or 220/127 Volt to the MEGA Yacht Pedestals. Of course, the Mega Yacht Pedestals must be suited for this.

The custom-made design that meets the NEN 1010 requirements for these special pedestals will be part of the next phase.
  - o Both the Left (480/277V) and the Right (220/127V) Section will have, as a minimum, a Multi-Functional Total Load Monitoring Devices (Amp's, Voltage, kW, kVA, kVA<sub>r</sub>, PQ) that gives both SEC and the Dock operator the possibility to check what the total electrical load and the electrical power usage (kWh, kVAh and kVA<sub>r</sub>h) is on each individual SEC Transformer. However, we recommend using a more sophisticated Measure- and Monitoring System which can also measure every individual circuit in that section and has the possibility to connect to an energy management and -billing system.
  - o We strongly recommend installing the Main Distribution Board in a separate Main Electrical Room at the back of the SEC MV/LV switch gear and transformer rooms.

Location of the SEC MV/LV rooms and the Main Electrical Room as close as possible to the dock, this to limit the lengths of the power distribution cables from the Main Distribution Board to the pedestals on the docks.
- All pedestals will have their own feeder cable, coming direct from the Main Distribution Board.
- All outlets in the pedestals will be additionally "Ground Fault Protected" by Residual Current Breakers with Overcurrent protection (RCBO) that will be installed inside the pedestals.
- The 220/127V pedestal designs of ATM for the circuitry in general is okay for us. Final design of the pedestals will be part of the next phase.
- Power distribution cable calculations (INTELEC - NEN 1010 based software) will be part of the next phase.
- Grounding- and Bonding design (NEN 1010) will be part of the next phase.